

## **Claims**

1. Novel deep-sea bacterium deposited with National Institute of Oceanography, Goa, India, having an accession no NIOCC isolate #222, and being deposited with International depository .....having accession no .....,which has a similar properties to known *Brevibacterium casei* isolated from the deep sea at 5000m depth waters of the Indian Ocean.
2. Novel bacterium as claimed in claim 1 is a baroduric (pressure tolerant) one i.e. it is capable of growing both at 500 atm and at 1 atm pressure.
3. Novel bacterium as claimed in claim 1 wherein, the petroleum ether fraction of the bacterium when scanned in an UV visible spectrometer shows characteristic peaks at 448nm with shoulders at 430 and 470 nm , which is similar to the carotenoid compound.
4. Novel bacterium as claimed in claim 1 wherein, the alcoholic extract of the said bacterium having carotenoids, UV absorption, anti bacterial, pH indicating properties.
5. Novel bacterium as claimed in claim 1 wherein, the extract of the bacterium is used in many industrial applications, such as a food and beverages additive and food additive colour cum preservative.
6. A process for the preparation of alcoholic extract of deep-sea bacterium isolated from the Indian coastal zones of Arabian sea, said process comprising isolating the bacterium and growing the cells in a medium with salinity ranging from 1.5 to 3% for 3-4 days at  $28 \pm 2^{\circ}\text{C}$ , centrifuging and washing with 1.5 % NaCl, extracting with alcohol for 2- 3 times and obtaining an extract which shows the properties of carotenoids (yellow/orange colour), UV absorption, antibacterial and pH indicator.
7. A process as claimed in claim 6 wherein, the solvent used to extract is methanol.
8. A process as claimed in claim 6 wherein, the extract is used as UV (A, B, C) absorbing compound.
9. A process as claimed in claim 6 wherein, the extract inhibits growth of Gram-positive and Gram-negative bacteria.
10. A process as claimed in claim 6 wherein, the yellow methanolic extract shows reversible colour change, being pink under alkaline and yellow under neutral or acidic conditions and is used as a pH indicator.

11. A composition for a sunscreen compound, said composition comprising, 25 to 75 mg methanolic extract of the bacterium claimed in claim 1, with 4 to 8 ml glycerol, 1 to 3 ml polyxylene sorbitan monolaurate, 5 to 15 ml ethanol and water q.s.
12. A composition as claimed in claim 11 comprising 50 mg methanolic extract of the bacterium, with 6 ml glycerol, 2 ml polyxylene sorbitan monolaurate, 10 ml ethanol and water q.s.
13. Use of methanolic extract of novel bacterium for enhancing the color and shelf life of cheese or yoghurt.
14. Use of methanolic extract as claimed in claim 13 wherein, the amount of extract used for enhancing the color and shelf life of cheese and yoghurt ranging between 0.01 g/kg to 10 g/kg.
15. Use of methanolic extract as claimed in claim 13 wherein, the amount of extract used for enhancing the color and shelf life of cheese and yoghurt is 0.01 g/kg.
16. Use of dried methanolic extract for preparation of menaquinone -7-8 containing substance for use in food and beverage.
17. Use as claimed in claim 16 wherein, the quantity of extract used in the range between 0.0001 to 0.001%.
18. A process for preparing menaquinone -7,8 containing substance, said process comprising growing the cells claimed in claim 1, for 2- 5 days, harvesting after centrifugation and either spray drying or lyophilising and using at a concentration ranging between 0.5 to 10 % for preventing and treatment of osteoporosis.
19. A process as claimed in claim 18 wherein, growing the cells for 4 days before harvesting.